

DRAGON USER

The independent Dragon magazine

July 1988

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Peter Whitaker wasn't satisfied with his Touchmaster Graphics software — so he wrote his own. This is it!

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Who is this man? What is his name? How much are we paying him? This month, only a Jet Set Willy map

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Mike Gerard tries again — with his usual batch of news and help for stranded adventurers

Competition

Strike your team — with this month's power set by Gordon Lee. How does he do it?

WEL COME to the new Dragon User, By Subscription Only. DU's regulars are the heart of the Dragon community in Britain, with many nerves and arteries reaching overseas to Europe and beyond.

Gamesplayers, serious programmers, and users experimenting with system design and communications have found the Dragon (which is the only popular little machine in the UK) a powerful and versatile tool and a good companion. Good enough to stick with despite the competition.

Now the Dragon world needs to stick together, keep the news circulating and ideas developing. Write to us about your User Group, show your copy of Dragon User to other Dragon owners, who may have missed their chance to subscribe through lack of foresight (or funds), so that they know that Dragon's own forum is still going strong. Remember — if you want to subscribe, nothing could be easier. Send off £14 (in the UK) or £20 (overseas) to Dragon User, 13-15 Little Newport Street, London WC2E for 12 issues.

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How to submit articles

The quality of the material we can publish in Dragon User each month will, to a very great extent, depend on the quality of the documents that you can make with your Dragon. The Dragon computer was launched as the market with a powerful version of Basic but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 2000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, whenever possible, be computer printed on an 80 column printer and be accompanied by a tape of the program.

We cannot guarantee to return every submitted piece of program, but authors have a copy. If you want to have your program returned you must include a stamped addressed envelope.

Letters

This is the place to air your views — send your tips, compliments and complaints to Letters Page, Dragon User, 12-13 Little Newport Street, London WC2H 9PP

Puzzle Query

I AM an avid fan of your computer page. I have at us online we have only a small chance of winning but because we have interesting and helpful to complete the programme we would like to know the correct result and method to be used. Not just those who need an answer — after all they have some idea. Others may be baffled but interested — why not give them the pleasure of learning from the correct method?

Dear Clancy
23 Swanage Lane
Conisburgh
Cambs CB2 9LP

If we get enough demand for this, we will — but what should we drop to make the space?

Please don't feel neglected if you send an SAC but don't get a reply. I don't support enough editors to write personally to all our readers — so we concentrate on urgent queries — where we are able to find an answer, that is. A good form of support is for readers to send us any information about problem-solving or software news.

Screen Change

IN ANSWER to Alan Owen's letter (Dragon User Dec 85) the program listed at 116 has an off-line page will convert the text screen to green on black. The CLS command is also updated so the CLEAR key and the RESET button will result in a green screen.

Has anybody had any luck with Spide? I've carefully followed the program using several methods but each time I just get an ending locker.

10 CLEAR:R000 32836
20 FORN=32540 TO 32535
REPEAT
30 FORN=VAL ("4") +
AS) NEXT
40 FORN=0 TO 137 PRINT

(4+CHAS)
50 FORN=0 TO 32537 POKN
(N004) NEXT
60 POKN 32532 128 POKN
380 127
70 POKN 361 28 POKN
455 125
80 POKN 417 127 POKN
455 108
90 CLS
100 DATA 32 62 34 38 85
88 81 8 28 0 8C 4 8
27 35 85 30
110 DATA 47 64 AT 82 28
15 81 0 26 4 8D 28
28 8 4D 26
120 DATA 8 14 8C 7F 7D
A8 A8 88 48 A7 88
8F 88 8C 8
130 DATA FF 28 11 8E 4
0 8C 80 28 8D 81
8C 8 8D 28
140 DATA F8 8F 18 8D 3
28 88 88 28 A7 88
1F 10 84
150 DATA F7 28 F8 28 2F
1 28 35 18 8C 84 82
28
160 DATA F8 08 28 7C
8A 78

Paul Dargen
15 Moorcroft Road
Sheffield
S10 4JH

Tandy club

FIRSTLY THANKS for an excellent mag. It is nice to know someone else cares. I sent a Tandy CoCardM. I have loads for 2 1/2 years and have been buying your mag all that time.

May the complaints have come the CoCo finally gets a mention? At any rate, if not most of your readers are Tandy owners. So please don't forget us.

Secondly — come on you programmers, don't forget us either. How about writing your programs for the CoCo as well as the Dragon. I know Binky and Microdroids but that is about all.

Thirdly, I would like to start a CoCo/Dragon Users Club in the Bedford area. It would program ideas etc. Anyone interested please contact me at the address as shown.

Once again Dragon User keep up the good work.

Mr S R Razon
167 Sparrow
London
Eccles SE15 5AG

Monitor Bug

THANK YOU for publishing the MONITOR program. Unfortunately there is a bug in the program so that the floppy routine will only work on the graphics pages. To fix the routine, use the <A> key routine to poke a 0H12 into memory locations 440E74 to 440E7E. Sorry for any inconvenience this may have caused people.

Peter Whistler
73 Alenah Street
Canterbury
CT2 1ED

Nice one Roy!

I AM WRITING to compliment Roy Collins on his Jet Set Wily. All the Spectrum owners (one of them enjoying it back as a dog because of the seven owners (at the last count) enjoy their Spectrums. I keep adding it into the table in his fingers from the keyboard).

All in all the game is great and he has a great idea. Don't let him look just so good and like that goes to show the Dragon is better than the Spectrum. If you ask me it is more like that even. Like what H T Baker said in his letter to the software companies. You support it and we will support you.

P.S. I think the Dragon User doesn't let his Dragon sleep up the good work.

J. Dwyer
27 Carlton Avenue
Droghda, Dublin
Droghda
Droghda
Droghda
Droghda

Hacking Mad

ONE PROGRAM I have been trying to hack for the past five months. I am pretty sure I have finished. The following are the files, if typed before the end of madness and the final result.

Give the code command to <A> and the result of printing your strength is an answer. This has advantages if you get very weak from say being invaded by enemies, or if you need to make a vital jump.

POKE 9813,104
POKE 9814,255
POKE 9815,104
POKE 9816,5

POKE 8758 (3 to 345 in steps of 5 — maximum number of points required)

or
machine code
LDA 255
STA 98

Simon McGregor
Crawley Hill Farm
Wey
Dunstable
Glos
GU11 5BH

Holy Days

I HAVE BEEN doing a fair amount of research into the Yorkshire Parish Records. All of them from 1780 March 24th 25th as the change date (See T. Bolkington's letter May 1985).

The winter was the 1st of the year and it must be a good occasion to know. (I wouldn't put it any more strongly than that — did).

Aspects of nothing can anybody tell me when Xmas day was last celebrated as a holy day as a season of the year. It has been celebrated that year and even banned on 25th December.

Dennis Greenwood
12 Fawcett Court
Southampton
Hants SO2 6SD

Apology

The Blockbuster ad should not have appeared in the May issue. Our sincere apologies to anyone who was inconvenienced by this misprint, not least to Microdroids themselves.

News desk

If you have any new products for the Dragon — software or hardware — bring them News Desk on 01-437 9345

Your Dragon — The Future

HOW THAT Dragon User is appearing in an exclusive newsletter form an asked some of the Dragon's creators and supporters how they saw their future with the beast. Will the 50 000 Dragon users in Dragon Users register and occasional evidence provide enough enthusiasm to proceed the respected but be forgotten machine from falling below critical population levels as a commercial proposition?

Comments: "I'd expect that to be the end of the line. We're not raising money out of the Dragon. We're based on strong survival. It's the only popular 8088 machine in the UK, and as distinguished our position in schools and colleges, so we shall continue to support it as long as we can."

But we're for almost years at the apex end of the market now. I think games players will be disappointed. We've sold hundreds of Dragon Plus units at £120 a unit, but I can't see where else we can go after the Dragon Plus. I could see the Hard Disk Drive becoming

very popular until hard disk prices come down which is some way in the future.

There's going to be a space shortage. We're run out of replacement tape drives — there can be more, so tell everyone to make sure of their leads are properly cut lead and the connectors on the right way round. We lose money on repairs, and now we're running out of parts.

Has he heard from Eurohard in Spain?

They've closed their Madrid premises and withdrawn to their factory. I've had a 1988 price list but reporting prices just are not realistic. I can't get through to anyone there but it's not at all gloomy — the Dragon has been around for five years longer than any-one predicted, and we're going on with it.

John Bates at Baby Software and Jeremy Goss of Microdeal were both sympathetic that, despite the Dragon's problems, they had plenty of new games coming along and Dragon User subscribers



would be hearing about their pre-release as usual. The Goss telling people that Dragon User won't be at the event stands out. John Bates of them are a bit perturbed about what's happening. All is explained on this month's front page. Jeremy reminds everyone again that Microdeal are organising the 8088 Show at the Royal Horticultural Halls in Victoria, London on 22nd November. More information on from Microdeal on 0706 68003.

Last hobby news came from Melbourne House — formally for Dragon User problems more in the April contest. Melbourne have used up their stocks of Ever the Dragon and won't be releasing the

game, but they hope to release some copies for the remaining copies.

Problems of some company Europe/Panor 128 are still struggling to sort out their backlog of customers with far in Europe problems, according to the Birmingham Consumer Service. Some users have received replacement games but are still having trouble with the program. The company simply ran out of stock in which I didn't believe, says the man from the BCC. What a tragedy and to a good idea.

Practical Programs

PRACTICAL programs for small businesses are the new specialty of Warrington software publishers Buzz Software. They are offering an information pack on their software plus a discount of £1.50 on the £2.95 packages until 31st July 1988. Most of the £5.50 single can use one another's data files and are priced at £5.

For information send a £1p stamp to SAG to Simon Goss at Buzz Software, 15 St Stephen Road, Pocklington, Warrington, Cheshire WA6 2AN.

Convention Report

THE FIRST 8088 convention was held on Saturday and Sunday 18th and 19th of April in the atrium hall of the Grand Buildings in Manchester. Most of the regular exhibitors were present and several guest speakers were invited.

The speakers on Saturday included a very light-hearted talk by Simon Gynethal at Com Planners on the waters of Pinta against 08-8, a very well-received talk on programming techniques from Gordon Threl (who incidentally runs a cheap and efficient repair and upgrade service on 055-952 0722) and an absolutely brilliant speech by Keith Roan of Bradley House.

Sunday started under an atmosphere of disappointment from the speakers who on the whole (apart really from Microdeal) were not selling as much as they had hoped. Most of them said that they

would attend the next convention but that they could not make it on Saturday in London that night north of London in a hotel.

The show atmosphere was at its lowest when the floor was covered to prevent of private and every disappointed at the convention in a difficult situation (as unfortunately as that of the Dragon) could be seen.

Two cascade were presented to Broken Douglas to an embarrassed Roy Goss and the Program of the Year award which was given to Microdeal rather unsurprisingly for Shortcasser.

And that was it. Disappointment for the company but for the crowd a communal enjoyment.

I thought the convention was an improvement on the previous shows and would like to see it in London soon but if you disagree, you know the address.

Suck it and see

HOUSEKEEPING is all part of a programmer's routine. Now there is a little vacuum cleaner to help out with house-keeping of the most critical kind in and around the hardware. The battery-operated Mini Vac will either suck up dust and hair into its bag, or blow loose dirt

away. There is a choice of straight or curved nozzle, paper and all purpose or hair, dust, lint, etc. Useful for anyone who does repairs or other messy work.

Mini Vac costs £11.95, including VAT, and postage from Authoritative, PO Box 34E, Worcester Park, Surrey KT4 7YH, or from specialist and hardware stores.



Dragonsoft

Now available on tape for groups in and out of London
over 12 1/2 Lfs Newport Street London WC2H 7PP

Underwater

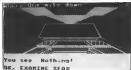
Program: Aqueduct 471
Supplier: Microcad
Price: £5.95

THE first of the three new Microcad releases under the new title is this adventure which is set underwater. The game starts on the ocean surface, you dive and start hunting around when your craft is captured by an underwater explosion. You go off to investigate and find yourself in an under water complex trying to save the place from a safety device.

Reading is mind that you're doing them a favour, the security forces are particularly unhelpful, indeed there are two sets of them and if you're not very quick in the joystick you'll

get sent back to the entrance again!

I am quick on the joystick because this is a most unusual adventure in many ways. The graphics, the game is split screen — top half for graphics bottom half for text and are very unusual in their style although they do have a certain clarity after the player is accustomed to them. The game runs like an adventure with the very useful facility of being able to move with the arrow keys (a la Synergy) but suddenly an element of certain locations the player is required to play a very simple arcade game to progress. No doubt this will annoy some people but I found it refreshing and the game shows the advantage of being solvable, after a game has been completed there is, very little, problems in doing it again and



again later time.

The adventure is not particularly difficult to solve but is a very good fun to play. Especially pleasing is the action involving finding a robot called Huey! It's a couple of afternoons' reward thought to solve this one and I can recommend it as an introduction to adventuring (and Map making as it's fairly straightforward).

This is a hard set of adventure I could quite easily play while sunbathing! It has that really nice relaxed edge which comes from it being set in an original environment. As you may have guessed I like it.
Jason Orsman



Timely

Program: The Vector Factor
Supplier: Microcad
Price: £5.95

THIS is the other new adventure from Microcad and is by the October team which stands as an indication of its quality. Where Timely was about space travel this one concerns itself with time travel and is again a very good game.

I haven't finished it, would you believe! I read a light 'zap' and then that of a problem as it there, and I can't find a solution to it yet. It's a harder than Aqueduct about the same standard of difficulty as Timelink in fact, so if that was your level you'll enjoy this one.



The game starts with you in a mansion full of interesting objects, a quick scroll round examining everything (more than once as it's now become a tradition) and you'll have

most of the stuff you need to get started. To give a bit to those stuck right at the start its doing some behind you and also studying it as of Physics! The format is standard graphics at the top (with some objects pictured) and text below, the vocabulary fine and the keyboard response very good.

There is no HELP option but the SAGE and LOGBOOK very neatly. However there is a problem with the adventure due to what I can only assume are its American origins. By

saying the problem I could be accused of giving a big clue to the adventure, but it is rather that one of the key objects cannot be moved until it is realised that it supports the Americans, even their dated month's then day, this year is 1376-68 would be Central in American format. I hope I haven't spoiled a part of the adventure for those struggling but I was, in the quietest of ways, annoyed when I finally cracked it so I feel that an adventure should have everything within it necessary to

solve it and should not rely on people's minds. For the solution to the problem in question I'd like to publicly thank a friend of mine although I have no idea how he knows about it.

To sum up, it's another good adventure, mirrored only by the above mentioned problem, and one to which I still like returning until I finish it. I hope that team produce more adventures, and soon!

Jason Orsman



Mountains

Program: Rommel 3-D
Supplier: Microcad
Price: £5.95

IF THERE is a sort of game I love reviewing above any other it's arcade games. The Whigs, everyone knows what sort of game they are still have to say in 'Rommels' or 'Rommel's Revenge' and I've sent my art two paragraphs of text describing the game, and all that remains is to comment on its quality as a copy and give it a rating.

At the time I sent on John Sykes said to me that the game was simply better than 'Rommel's Revenge' and he said if I wasn't he wouldn't have put it out.

The trouble is I just think it

actually is better than 'Rommel's Revenge'. Yes, it's better and you're more important than one of my games at the moment, but it's lack of graphics, but the game simply doesn't have the right feel of the original and 'Rommel's Revenge' has it.

Rommel 3-D is more relaxed and is by any standards a good game. It offers a choice of colours — yes, you can play this on green or black — and the sound is slightly better. The problem is it's too fast, it has (unlike) what was originally a tactical battle game on a field a large screen of graphics and a display which was team-play all moving games.

The game also has to play with all of the elements of the arcade. It offers tanks, planes and submarines. I don't know if the planes are the missiles or

saucers of the original as I've never tested long enough to see one — the game is same fast and the tanks are deadly! No doubt the Expert has loaded his way into the millions as it by now and will inform us all through his next volume what they are (or, incidentally, what has loaded me that someone thinks I can. The Expert can't state here and how that the day my emphasis deteriorates to his level I shall perk up writing afterwards).

So the game is good, and if you find 'Rommel's Revenge' boring he could be the version you want, but if you want a game copy of the arcade game this is what the one!

Jason Orsman



Down The River

M. Croucher creates a canoe challenge

NOTHING like paddling about in boats. And canoe is an ideal trip on a wet afternoon. You don't have to unpack your kayak, put type in the BASIC loader and hit storage, load and launch.

First enter the BASIC hex loader and when complete, type RUN to begin.

The data is split up into eight blocks, and displayed on screen in the block number and address. Type in the relevant line of data and the commas will be displayed after every two digits have been entered, so there is no need to enter them separately. The last number is a check sum and this should be entered after the ? prompt. If an error has occurred then the address will be displayed again and the line of data will need to be re-entered.

When all the data has been entered the program will be saved to tape, ready for you to use. A copy on tape is available from M. Croucher, 14 Halingbury Road, Prospect Farm, Haslem, Hants PO9 5SE, price £2.48 (eight blocks of data seems like a lot of typing).

Use CLDAOM to load the program. Once loaded, type EXEC to start the game. You have a choice of red or green canoes. For users with black and white TVs, a green canoe only is recommended.

The objective is to paddle your canoe as

fast as possible, trying to get through the gates without touching the marker flags. If you touch the first line the time stored you can proceed to toggle the second over on the river. Because of the gates and rocks as these will turn your canoe. You have three chances to travel as far as possible.

A bonus point is awarded for each gate successfully negotiated, but all bonus points are lost if a flag is hit.

The right joystick is used to control the canoe. Moving it from right to left will move the canoe forward. Trying to paddle too fast will result in the canoe getting lost, and the canoe will go out of control.

The time stored, and the distance between the gates can be changed with the following values:

POKE \$H2011, No

POKE \$H20A7, No

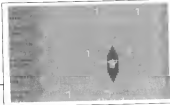
Where No is the distance required between the flags. 0-No=025. Default setting is 64.

POKE \$H4735, No

POKE \$H473A, No1

Where No and No1 are the last two digits of the time required. Default setting No=1, No1=0.

Once finished, press any key to start a new game.



```

10 POKEAR 1
20 CLEAR 200, $H20FF
30 FOR BL=1 TO 8
40 READ ST, EN
50 CLR$ PRINT "      HEX LOADER":PRINT "-CANOE- BLOC":BL
60 FOR ADD= ST TO EN STEP 10
70 PRINT HEX$(ADD):CD=0
80 FOR EX= 0 TO 9
90 GOSUB 200:POKE ADD+EX, VAL$(M$+EX)
100 CD=CD+VAL$(M$+EX)
110 PRINT " ", :NEXT EX:PRINT:INPUT AF
120 IF VAL$(M$+EX) > CD THEN SOUND 200, 5:PRINT "-ERROR- REBO":GOTO 70
130 NEXT EX:PRINT
140 CLR$PRINT "SET UP CASSETTE AND PRESS ANY KEY"
150 IF INKEY$="" THEN GOTO 160
160 CLR$PRINT "NOW SAVING CANOE"
170 DSAVE"CANOE", $H2400, $H2010, $H4000
180 PRINT :PRINT "CANOE SAVED BYE"
190 END
200 AF=INKEY$:IF AF="" THEN GOTO 210
210 IF (AF="P" AND AF="A") OR (AF="O" OR AF="F") THEN GOTO 220
220 PRINT AF:BF=AF
230 AF=INKEY$:IF AF="" THEN GOTO 240
240 IF (AF="P" AND AF="A") OR (AF="O" OR AF="F") THEN GOTO 250
250 BF=BF+AF
260 PRINT AF:
270 RETURN
280 DATA $H2400, $H20FE, $H3000, $H2005, $H0000, $H2000, $H200B, $H4000, $H41AF, $H4001,
    $H4703, $H4000, $H4008, $H4000, $H40B8, $H4F00, $H2017
    
```


On the other hand, the *in vitro* results of the present study suggest that the addition of the *in vitro* released factor to the culture medium of the cells is not sufficient to induce the same effect as the *in vivo* treatment. This may be due to the fact that the *in vitro* released factor is not the same as the *in vivo* released factor, or that the *in vitro* released factor is not the same as the *in vivo* released factor.

[illegible][illegible][illegible][illegible][illegible]

Choosing a Disk Drive

A disk drive is a major investment — plan before you buy. **adventures Geoff Etridge.**

DUE TO the demise of the Dragon as a games machine, many loyal users may be tempted to buy disk drive bargains appearing in various computer magazines. However, there is more to a bargain than the price factors such as the suitability of the equipment to perform the tasks required of it, availability of software and its compatibility with other systems must also be considered. This is where the enthusiasm for amateur can become unwise through lack of knowledge. There is little written information and what is available tends to be in the form of snippets in articles or advertisements. There is then a need to collate and present the pieces of information gathered from these various sources to help the least well informed among us to make a more informed choice. Judging by the standards of critics in Dragon User many readers may find this contribution simplistic, but then as all need some light leading from time to time!

The System

There are three parts to a disk drive system to be considered:

- (a) The disk drive
- (b) The disk operating system (DOS)
- (c) Software

Although I will consider each separately, the system as a whole needs to be designed and evaluated against the particular tasks that it will be expected to undertake.

Before looking at disk systems it is wise to ensure we appreciate the benefits of disks over cassette tapes for storing data and programs.

- (a) Files are read and written to disk far faster. A disk rotates at 300 rpm.
- (b) As files are stored in continuous rings on disks it is possible to directly access files, whereas a tape needs to be sequentially searched.
- (c) A disk system writes and keeps a catalogue or directory of the files on each disk.

The disk system therefore comes into its own when considering the handling of data files. Everyone who has attempted to use cassette data files has probably experienced errors arising from the slow acceleration of the tape head or the tedious of rethreading the duration of the latter one. As such problems with disk drives. Different files of data can be accessed quickly and if the data was written to disk up a random file it is possible to jump around the file for specific items. This type of random

access file allows for parts to be updated whereas a cassette data file would need to be totally re-written.

The simplest analogy for comparing disk and tape storage is to compare an LP with a music cassette. Once a track on an LP has been chosen the arm can be moved directly to that track. When a cassette track is required the arm can be moved to the same location. It is difficult to perform the same regime with a tape as it is difficult to identify where one track ends and another starts. Although the higher speeds of tape forward and rewind can be used to move to a new track, the tape still needs to be sequentially searched.

Now for some definitions. A disk can be single or double sided and can be either single or double density. (Quad density is also available but I have yet to see any suggestion that it can be used as a Dragon system.) The number of sides needs no explanation except that to confirm that a double sided disk can store files on both sides so long as the disk drive being used is capable of such a task. The density of a disk affects the amount of data that can be stored on the disk. The greater the density the closer the information can be written on the disk and consequently the more data it can store.



Before a disk can store data it needs to be 'formatted'. This uses some of the storage capacity of the disk so it is advisable when comparing two different systems to ensure that the formatted capacities are compared. The formatting of the disk results in it being divided into tracks and sectors. The disk operating system (the DOS) also writes essential information on the disk which will be used by the drive to find the desired programme or data file when the system is used. With the tracks and sectors numbered and a GATag and/or

DIFentry on the disk the drive can move quickly to the location where the data is stored.

Each DOS system will format a disk differently affecting the capabilities of various systems. The formatting of a disk also means all data stored on it is therefore not possible to re-format a disk for another DOS without losing your data or files. Now to consider the three principle parts of a disk system. The drive, the operating system (DOS) and the software.

The Disk Drive

The task of the drive is largely self-evident from the above. It needs to rotate a plastic disc of material the disk at high speed and to be able to read and write data on it at very precise points. The drive is therefore a precision instrument. This needs to be remembered when considering the purchase of a second-hand machine. A drive is heavily used equipment (by its imperative use) and have caused damage which could be expensive to repair. Before purchasing a second-hand disk drive, see the system format a disk, write data to it and read it.

Some drives such as the Dragon drive are only able to use one side of a disk. Double sided disks can be used in this drive but only one side will be used. This effectively halves the amount of information that can be stored on the disk. Double sided drives such as some of the Curiers models are able to use both sides of the disk but some problems can arise as a consequence of the DOS which means the double sided capacity cannot be used. This will be considered below under disk operating systems but generally this is not a great disadvantage if the double sided drive is able to format a single sided disk when required. Again the watch word is to check and if the system is able to format both types of disk then the versatility of the drive is enhanced.

When formatted a disk is divided into tracks. The standard choice is either 40 or 80 tracks per disk. The 80 track offering twice the storage capacity of a 40 track disk. The number of tracks that can be formatted on a disk is dependent on the characteristics of the drive, the DOS and the disk. Even if the disk and the DOS are double density a 40 track drive will not be able to format an in an 80 track disk. As most software is split on 40 track disks it is important to check that an 80 track drive is able to read a 40 track disk before it is purchased.

To have the best of both worlds, high storage capacity plus being able to use a range of software it is possible to buy drives which are 40/80 interchangeable. The only problem posed by such drives is that the operator must remember to switch between modes for the differently formatted data. Another solution could be to check that the software houses you use have the capacity to reformat their 40 track software onto 80 track disks if required.

Whether to purchase a single or dual drive is a decision based on expense rather than the primary task that the disk system is required for. There are various systems on the market and to make a choice purely on cost could result in undermining the usefulness of your disk system. By having a dual system it is possible to designate one drive as a system drive which will load the software being used while the other could be the work drive which would store the data being used. A simple example is to consider a word processing package. The text drive could contain the program being used plus ancillary files such as a spell check while the other could hold files of documents that have been or are being prepared.

If a vast amount of storage space is not required it is maybe more convenient to operate with two single sided than one double sided drive.

Disk Size

The third aspect of the drive I propose to consider is the size of the disk. Mike Jarvis (*Computer Age*—January 1986) examined yet another scourge of home and business users—the INCOMPATIBILITY. There are currently three main sizes of disk in present 5 1/4 inch 5 1/4 inch and 5 inch. Because of improved disk technology all three sizes hold approximately the same amount of data. The 5 1/4 inch disk is floppy, the rating is not rigid and the disk is vulnerable to damage through its exposure at the read/write slot. The 5 inch and 5 1/4 inch drives are encased in a more rigid cover and the read/write slot is protected by a shutter which is opened as the disk is inserted into the drive. Some 5 1/4 inch drives are compatible with 5 1/4 inch disk operating systems but again the watch word is to check the compatibility before purchase as the design of the drive may differ and it may negate the disk of an incompatible system.

Making the choice of disk size is difficult with much conflicting advice. The smaller disks are more solid but this could result in inflexible lower level coding can bring about enhancing the risk of damage. Mike Jarvis after discussing the relative merits of the different size disks felt that the 5 1/4 inch format held the most promise for longevity of lifetime.

As far as Dragon users are concerned Dragon User (December 1985) reported that Microbase were planning to extend the range of Dragon disk drives available from the present single sided 40 track format. Whatever changes that are proposed by the single manufacturers were reported as intending to remain with the 5 1/4 inch disk.

If you propose to purchase a drive other than a 5 1/4 inch check on the availability of software. Check also if you are not purchasing a full package that the drive is compatible with the disk operating system you proposed to use.

Operating Systems

Disk Operating Systems (DOS) appear to

- (1) PC/DOS systems which interface with resident BASIC by adding disk handling commands, ie Dragon DOS and Curma DOS.
- (2) ROM systems which replace the ROM BASIC of the Dragon with entirely new systems, ie the Plus System of Andros Data Design.
- (3) Software based systems such as FLEX and GSA.

The ROM-based systems offer to a varying extent facilities beyond those necessary for a disk interface by adding some utilities to BASIC. For instance Curma and Dragon DOS add such convenience as AUTO for automatic line numbering, a BEEP command and WAIT to introduce a pause in programme, a useful alternative to FORNEXT loops. These additions are hardly sufficient reason to purchase the system but represent a tidy tidy.

The Andros system, however, makes significant changes to the way the Dragon performs by adding new commands and enhancing the screen display (green on black and 60 columns). (See Dragon User November 1985 for a review.)

The software systems require a ROM system to be loaded. The ROM DOS must have a BOOT command or equivalent which will load sectors of the disk which then takes over the operation of the system.

The software systems are expensive but FLEX and GSA are extremely professional and sophisticated making the operation of the total system much more friendly. They also offer a way in to various software packages.

It is not necessary to have FLEX or GSA to use your disk system initially but powerful software has been written for both these systems so clearly the price paid for them is well worth the cost of the system but first the software which will drive them and then they then indicate one of these systems are necessary.

If FLEX is chosen a Dragon 64 is necessary unless the Plus package mentioned above is used which is able to run FLEX on Dragon 32. An aspect of FLEX which may be attractive is that software that runs with FLEX will run on any machine which uses it, for instance the BBC. (For details of FLEX see Dragon User February 1985 and September 1985)

Software

A problem which may crop up if using Curma or Dragon DOS is that it is unable to BOOT a double sided disk. This should not pose any problems so long as you remember to format a single sided disk when constructing a new system disk. Unless you are a skilled and selected

programmer without interest in 1985 were produced by others you will need to be sure that the desired software is available for the system you propose to use. Most games and general software appears to be available for Dragon and Delta DOS. More recently Curma DOS has increased its profile since they switched from Delta DOS to providing their own with their drive. (See Dragon User February 1986, reported from the 6800 side that Curma DOS is not the Dragon DOS although it is compatible with it. This would suggest that software that will run on Dragon DOS will also run under the Curma system. However check your version of Curma DOS the V2.0 appears to be more compatible than earlier versions. Again as there is no effective archive to incompatibility it is advisable to ask and perhaps check for yourself the compatibility of the software and the DOS that you are using or propose to purchase.

The purchase of software is never a waste of time when considering the cash for properly investment you may be making. There is no point buying a 5 1/4 inch drive even if it is compatible with a 5 1/4 inch DOS if software houses only supply their programs on 5 1/4 inch disks.

The GSA and flexibility of software means also to be taken into account. For instance, there is more software available to run with FLEX however a recent advertisement carried in DRAGON USER late 85 offered GSA software at very competitive prices compared to the recommended retail price.

Conclusions

It is a sad reality that Dragon support could become aimed in the contrary. The previous economic downturn in which the small computer firms operate is such that their services could one day stand the death knell for others. There is therefore some wisdom in investing in equipment and software that can be used with other computer systems should this become necessary. Without checking all the consequences, which is not realistic because of the large number it is possible the necessary misapprehension and biased advice could be obtained. But questions such as, will the disk drive operate with the DOS of another computer? or will software that runs under Dragon FLEX operate with FLEX on other systems? may offer some insight into which could help you ensure your investment could be safely salvaged should the Dragon brand be as last day be last.

Throughout this Thomas Cook's tour through disk drives and ancillary subjects the advice that should be evident is to take a realistic approach. Identify the tasks you predominantly wish to undertake, look at the software and what it requires, and then for its possible role into the future to ensure you are not investing in obsolete equipment. Lastly, question checks and observe before going with any well-trodden path so that when you are all hooked up all systems are ready to go.

Good Luck for successful bargain hunting!

Dragon Answers

Error

I HAVE a Dragon 32 and a Star printer. I was playing with them when a message came up: "FIVE ERRORS. I looked it up on my list but I couldn't find an explanation. Could you help please?"

David Lyndford
28 Ltd Street
Ludlow
Shropshire
Worcestershire
Worcestershire
Worcestershire
Worcestershire

THE "FIVE ERRORS" stands for "Five Errors: Error" and means of the classical number given in an OPEN, CLOSE, PRINT or INPUT command is invalid (ie 0-9 is not -2, -1 and 0). Unfortunately, this error is not noted in the Dragon manual.

If you have a disk drive, then the error can also be caused by an illegal write drive number.

Extra Poke

I AM currently writing an adventure game for my Dragon 32. However, I have now run out of memory and the game is unplayable. I remember a POKE in a magazine which gave the user an extra 9K. Could you tell me this POKE, and whether or not it needs to be entered before loading?

David Lyndford
28 Ltd Street
Ludlow
Shropshire
Worcestershire
Worcestershire

THIS is one of those questions that come up every regularly then others on this page. The POKE1600 command is for use to reserve extra memory RAM and for the printer module. Typing POKE0 0-1 POKE1600 will reserve all but one graphics page and allow the RAM to be used for your basic programs. Unfortunately, it is not possible to save POKE1600 as this returns an error.

However, it is possible to achieve the same effect as POKE1600 by typing the following:

POKE 16, 0: POKE 1600, POKE 0: POKE 1600, 0

This will take into account if a disk drive is attached and should be entered before loading any program that is to use the extra RAM.



On/Off

I HAVE two programs, which run lengthy routines during which I want to switch off the TV I use with my Dragon 32. I found it convenient to install a small audio amplifier so that I can play one audio signal to initiate completion of the process.

I know that the audio signal is available from the monitor socket, but is there any DC available to a socket or must I build a separate power supply for the amplifier? Is DC available at what voltage? Can you tell me the audio signal level of the monitor socket?

G T Jones
12 Richmond
Addington
Croydon
CR8 6BB

THERE is no power source available at the monitor socket, however you may get 5V's plus 0 of the joystick ports, and pins 2 and 4 of the Centronics port. The audio signal at the monitor socket conforms to the standard DIN standard.

Scroll

I HAVE been trying to write a machine code routine to scroll the PMODE 3H screen horizontally. I have tried two obvious methods: 1) ROR/ROL (too slow)
2) Moving the screen byte by byte (too slow)

Could you tell me how the fast, although complex effect is achieved?

P J Jones
Preston
150 Exmouth Road
Surrey
Surrey

THERE are a number of different ways of fast scrolling the screen. The one I favour is word scrolling synchronized to the screen flyback.

You should write a routine to scroll the screen incrementally a byte at a time across 64 bits at once using the 0F register for speed, but wait for the frame flyback pulse before each write. This is achieved by waiting for bit 7 of (PMODE) to change. The result is fast and reasonably smooth horizontal scrolling.

Printer

I HAVE a Silver Reed Colour PenGraph Model 8500 with a built in Centronics interface. Unfortunately when the PenGraph is connected to my Dragon 32 and is in PMODE mode (on-line) it responds to the depressing of certain keys on the Dragon keyboard without any command such as PMODE-2 being input to make it do so. This only happens with four keys, namely 0, 1, 2, 3, and 4, and happens plus the 32-bit version of these four keys. When 0 is input a print is made, a space is printed out by the PenGraph. When 1 or 2 is input, the symbol 0 is printed out either once or twice randomly. Any other key pressed immediately after one of these four keys may cause a repeat of the space or 0 symbol being printed out. Can you tell me why this should happen?

Alan Whitaker
14 Throgmole Road
Barnet
Herts

THE same PA can be used for both the Centronics printer interface and for obtaining the keyboard information. The keyboard is read the values in

the data lines of the printer port will change. However, the printer should not respond to this as the 'write' line will be high. The printer will only print the character at the port when it is strobed. This strobe line goes low then high.

Your problem seems to be with this strobe line. The next likely cause is the printer lead. I suggest you test the lead with another printer before connecting the computer or printer.

Video

I AM attempting to write an article ultimately for submission to Dragon about the use of the video monitor for saving programs from computer. At present the video card substitutes for the video from the monitor socket. A game for example can then be recorded at the video as it is played.

Using the composite card, the audio output (CAUSE) needs to be substituted for the video and is fed back on CLAUDIO from the audio output (CAUSE) section on the rest of the video. The recorded program can then be viewed back in the beginning and the program (CAUSE) onto the video channel.

At the start of writing to load a game then needs to be done to SEARCH through the video tape until he gets his game and then CLAUDIO is the computer.

The problem is that many video machines do not output a video signal directly so what is needed is for the video output present on the composite socket on CAUSE to be also present on the monitor video output at the same time, which is not at present. Could you kindly advise me as to whether there is a software POKE or something to achieve (CAUSE) to be the monitor video? I can then do nothing at the monitor socket in any of the sections I have at present.

Rich Brinkley
28 Richmond
Addington
Croydon
CR8 6BB

YOU can access the CAUSE lines to be used in the monitor socket by typing the following: POKE 16, 0: POKE 1600, 0: POKE 1600, 0

Unfortunately, this would be done within a program which is displaying one of its screens at the time.

[illegible]

Extra Graphics

*He liked the software so much — he wrote his own
Peter Whittaker on the Touchmaster Graphics Tablet*

Having bought a Touchmaster Graphics Tablet I can agree with Mike Barnard that it is well worth the price of \$192.95 (Oregon User February 1988). When I first bought the tablet I was quite impressed with the graphics available through the Multiscript program, but after a short while I felt that it needed improving.

The program I have written is based around the Oregon 32 with data flow to obtain a printer resolution of 512 points by 384 which is better than the Apple II/III/IIIx at 312 by 384 points. The program can easily be altered to work with cassette tape instead of with disks, although the machine code routines will need to be altered to take account of the different graphics screen addresses. The program will also recognize the Oregon 32 with the loss of the extra big graphics screen facility.

The Graphics Tablet

The graphics tablet is connected to the Oregon via the cartridge port, but is not patched into Oregon Basic. There is no equivalent of the `GRAPH` command to read the position of a pen on the pad. Instead a short program is needed to read whether the pen is pressing the pad, and if so where. (Apparatus: `IF PAUC0000`.)

Unfortunately the pad does not use the same resolution as the Oregon's graphics screen (256x192), but has a resolution of 254x254. This means that rectangles are not square in shape. A circle drawn on the pad will look like a squashed egg on the screen unless the `X` co-ordinates are suitably adjusted. The program will show the unadjusted co-ordinates at `X=PC0X (XAU000)` `Y=PB0Y (YAU000)` and the modified co-ordinates at `X=PC0X (XHT000)` `Y=PB0Y (YHT000)`.

As before the program will read the pad and then set the equivalent point on the graphics screen to enable the hand drawing. However, by entering the code `PC0XAU0000` the program will stop before setting the point, and the machine code routine can be used to read the position of the pen on the pad for use with other functions.

The Main Program

Type in Listing #1 and save it as type `Extrg` do not have a disk drive remember to change all the assembled routines from `SAVE` `A030000000` to `A01000` to `C04` `ROM` `A01000` `0000` if not. Now type in Listing #2 the machine code loader `CL04A000000000` and then `ROM` it. Enter the start and end addresses of 325501 and 32715. Then enter the data for `PAUC0000`. Type in page one of 16 digits, and then press enter. Then enter the `PAUC0000`



at the end of the line. When you have typed in all the data, save it to tape/disk with `C04` `ROM` `PAUC0000` `325501` `32715` `326001`. Now do the same with the `PAUC0000` `SCREEN` data using `325501` and `326000` at the start and end addresses. You can now reset the tape, `CL04A0` and `ROM` the program.

When `ROM` the program loads in the code and then displays the graphics screen whilst the various variables are initialised. When the program is ready the top left corner of the screen will be outlined and then restored (black to white and back again.) This inverted area of the screen refers to the area of graphics memory currently being addressed by the pad.

Unlike Multiscript the program is controlled from the keyboard, since the whole surface of the graphics tablet is used for drawing. Each time a key is pressed, the current screen is backed up to graphics page 414. This allows for the reduction of an image (scale) caused by pressing the `40` which will delete everything entered since the last key press, and help to correct any mistakes. Pressing the `42` will save the current screen in memory, so that it can be restored. After several requests to drawing operations.

Press the pen on the pad, and any free hand drawing will be displayed on the screen, to the scale of the original involved box. To facilitate detailed drawing, there are four different drawing area settings and these are called by pressing the number keys from `43` to `46`.

`43` will set the pad to draw over the whole screen. `44` will draw on a quarter screen. `45` on a half screen and `46` on a eighths fourth. Each time the scale is changed the program will invert and restore the screen area of the screen. While the full screen `43` will allow drawing over the whole screen, the other scales require the drawing area to be positioned over the appropriate area of the screen. This is done by pressing any of the four arrow keys. Each time the

drawing area is moved, the program will invert the relevant area of the screen to show where the drawing area is now positioned.

The program is error trapped to prevent the drawing area from running over the edge of the screen. To help position the pen in the right place when using the various drawing scales, the `47` key will place a line over the drawing area. This eight by eight grid will be scaled to show the area covered by the whole pad and will be displayed until another key is pressed.

There are several different brush types available as an alternative to the freehand point mode selected by default. These brushes are called by the `48` key, and then give a choice of circles, lines or basic Cartesian radius, and basic key offsets are selected, and then the program returns to the graphics screen. Freehand drawing will however use the selected brush type. To return to the main program press the `49` which will also return you to the point drawing mode.

The next available function is the Oregon's `GET` and `PUT` commands. This will get an area of screen memory into an array and then allow it to be copied to any other area of the screen. Press the `40` to call the `GET` routine. Two lines will be drawn from the pen position, one off to the right hand border and one to the bottom of the screen. This is to show the top and left hand edges of the area which will be got. When the pen has selected the correct point press `Enter` to look it up.

Now as the pen is moved around the screen the program will draw a box from the first point to the current point, following the top of the box is going to be erased to the array. This area is initially around 10000 pixels (10 x 1000 100 x 100) and is a little too big for the array. When the box is correctly positioned, press `Enter` again to copy the picture. If the area is too big for the array it will roll copy across and the program will continue to wait for the second

point to be selected. The routine can be started by pressing the **↵** key.

Having copied a picture into the array, it can be copied back to the screen by pressing either the **␣** or **␣** keys. The **␣** key will put the array back on the screen wiping out whatever background it covers while using the **␣** key will place both the array and the background on the screen. Whatever key is used, the cursor will flash on and off wherever the pen is placed. Press **Enter** to select the desired position, or the **↵** to call the routine. The array will keep the same picture in it so there is no need to reGET it each time.

The next function called by pressing the **␣** key, prints an array any letter is entered via the keyboard. When called, the routine will first ask for a scale at which to draw any letters (1-16), and then ask for an angle at which it draws the letters, up/down/left or right (0-3). The program will then display two crossed lines to mark the pen position from which the letters will be drawn. When the pen is in the correct position just enter the type, and the program will draw the letters on screen. Press **Enter** to finish the last input. If you make a mistake in your typing from the last routine, then press the **␣** key to delete it.

The last drawing routine provided is called by the **␣** key, and accesses the Dragon's LINE box and CHORCE commands. The program will ask for which of the three options you want, and then return to the graphics screen. Position the pen to select the first point (and of a line or centre of a circle), and press **Enter**. When the pen is placed on the screen, the program will draw in the appropriate shape between the two points. Press **Enter** to select any given shape, and the program will go to it in the display, and start on another in this way for example, seven commands on can easily be drawn. To quit the routine, you need to press the **␣**.

All of the above functions are fully available on the Dragon 3D, but the following routine is not. When in G4K mode, the Dragon uses all RAM or RAM chips, but what is in ROM mode only half of these are used (the other 32K is hidden under the Basic ROM and cartridge memory). To obtain the high resolution outer graphics memory, I have set aside 24K of this extra memory for graphics. The 24K-192 graphics screen acts as a window on this

greater area of graphics memory (512×384). By pressing any of the Arrow keys with the Shift key, this window can be scrolled over the larger graphics display. Each time the window is scrolled, its contents are copied up to the Bigscreen, and the display for the new location is copied down. Pressing the **␣** key will compress the Bigscreen down to fit on the display screen so that an image of the left picture can be gained. The program then waits for a keypress before returning to the window display.

The extra memory for the Bigscreen is accessed by a short machine code routine, B445CPECH (Assembler #2). In fact POCB 8000, PCEB (8000) and 25H to stop the interrupts. Then it copies to B44FF0H to switch the computer to 64K RAM mode. In this mode, the Basic ROM and cartridge are no longer read as far as the computer is concerned. However, the extra memory can be used, and we can copy to and from the display screen. When we are finished, the program goes to B44FF0H to return to 32K mode, and POCB 848000, PCEB (8000) 00H to resume the interrupts.

The program includes a serviceable routine for both the display screen and the Bigscreen. 85 or 85H will service the display screen whilst 85 or 85H will service the Bigscreen. The display screen location routines ask for a screen size and then toggle it to that. The Bigscreen routines also ask for a size, but only use the last seven letters. The save routine will copy down the Bigscreen to the display screen in four quarters, saving each one separately, and numbering them from 1 to 4. The load routine will load each screen back to the display, and then copy it up to high memory (it uses cassette tape remember's data). The ROM from the load routine, Lines 280-380 (and 680). The last key to remember is the **␣** which calls the screen display. It reminds you of which key to press when. The only routine not mentioned is the **␣** to display the compressed screen and the **␣** to call the display screen.

Modifying the Program

With disk drives attached, the program only takes about 1500 bytes of memory, so there is little room for improving the program. If using cassette, the extra memory will be

located to 2K, and there is space enough for a few extra routines such as a 16 routine.

If using disks on the 64, there is little use for the backup screen (40×160×85) as this routine could be added, including the array. As this would clear enough memory for several program modifications.

If using a Dragon 3D, then it is advisable to delete the Bigscreen routine, and gain extra memory that way (about 8K-21K). For use without a disk drive, attached the machine code routines will also have to be stored in the location of the different memory used by the graphics screen. Before saving: B445CPECH POCB 8000 to 8 POCB 847000, PCEB POCB 848000 to POCB 847000, PCEB POCB 847000 to POCB 847000, PCEB 847000 to POCB 847000, PCEB 847000 to POCB 847000.

If you do not yet have a Touchscreen Graphics Tablet, but do have a Dragon 64, it is possible to convert the program for joystick control instead of the pad. Instead of calling the POCB 8000 machine code routine (B445CPECH), one can read the joystick, and instead of checking for a pen pressing on the pad, could check for the fire button. The program should still work to make use of the four different drawing resolutions, and various extra routines.

Printing the Bigscreen

Because the Bigscreen is hidden under the Basic ROM, it can not be accessed by a Basic program alone. The B445CPECH machine code routine is required again to copy data to the display screen for printing. The printer routine (LJPRINT) is set up for the B445CPECH (P100A). Lines 11-20 set up the machine code, whilst 60-100 load the graphics picture and high memory. Lines 120 and prints out the picture.

The program works by copying the Bigscreen down to the display screen a few lines, and then copying these to the printer. In a SCREEN1 is connected on Line 110, and you will be able to watch the picture. By varying the amount of data copied down (2 to 160) and the printout format, the program can easily be modified to work with any other printer.

If you don't want to type in the whole program, I can supply copies on cassette tape for £5. Send a cheque or postal order to Peter Webster, 73 Norwich Street, Cambridge CB2 1HD.

Patterns

32501	4F57FF5667FF5F57=	1326	92605	7FC5667FC5677FC2=	1032
32502	FF5C666187FF5666=	1149	32613	444444877FC5667F=	1019
32517	9467FF5667FF5F56=	1257	32621	55444444877FC512=	826
32525	7F6C010818256666=	897	32629	857F6C0F67FC5666C=	1228
32533	907F6C864830F07F=	1127	32637	F6C1802796366669=	454
32541	12667F6C6F8130F6=	1121	32645	5628F667F6C35446=	1699
32549	7FC344564456F07F=	1809	32653	5446544663444444=	578
32557	12607F6C664830F0=	1134	32661	444466661662704=	634
32565	7F4407FAC966130=	1807	32669	463456F677F6666=	1176
32573	577FC444564456F0=	1137	32677	81667F6C6F664466=	1133
32581	7FC4667FC5677FC4=	1395	32685	91677F6C6666FF5664=	1195
32589	66730445644567F=	917	32693	96618012124F67F6=	919
32597	7FC5666F667FC567=	1332	32701	56F6F6C566666666=	744
			32709	66666666666666F6=	379


```

600 REM=INKEY$ IF NOT FOUND GOTO
610 IF NOT(OTHER POWER) IF GOSUBS
620 GOTO700
630 IF NOT(CHAR13) THEN GOTO ELSE GO
640 GOSUB1200 GOSUBS(1) THEN MY=
650 MY=0, RESET 0
660 REM=INKEY$ GOSUB1200 MY=0, MY=0
670 GOSUB1200 GOTO700
680 IF NOT(CHAR13) THEN GOTO
690 GOSUB1200 MY=0, MY=0, MY=0, MY=0
700 GOSUB1200 GOSUBS(1) THEN MY=0, MY=0
710 IF NOT(CHAR13) THEN GOTO
720 GOSUB1200 MY=0, MY=0, MY=0, MY=0
730 GOSUB1200 GOSUBS(1) THEN MY=0, MY=0
740 GOSUB1200 GOSUBS(1) THEN MY=0, MY=0
750 GOSUB1200 GOSUBS(1) THEN MY=0, MY=0
760 IF NOT(OTHER POWER) IF GOSUBS
770 IF NOT(OTHER POWER) IF GOSUBS
780 IF NOT(OTHER POWER) IF GOSUBS
790 IF NOT(OTHER POWER) IF GOSUBS
800 IF NOT(OTHER POWER) IF GOSUBS
810 IF NOT(OTHER POWER) IF GOSUBS
820 IF NOT(OTHER POWER) IF GOSUBS
830 IF NOT(OTHER POWER) IF GOSUBS
840 IF NOT(OTHER POWER) IF GOSUBS
850 IF NOT(OTHER POWER) IF GOSUBS
860 IF NOT(OTHER POWER) IF GOSUBS
870 IF NOT(OTHER POWER) IF GOSUBS
880 IF NOT(OTHER POWER) IF GOSUBS
890 IF NOT(OTHER POWER) IF GOSUBS
900 IF NOT(OTHER POWER) IF GOSUBS
910 IF NOT(OTHER POWER) IF GOSUBS
920 IF NOT(OTHER POWER) IF GOSUBS
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970 IF NOT(OTHER POWER) IF GOSUBS
980 IF NOT(OTHER POWER) IF GOSUBS
990 IF NOT(OTHER POWER) IF GOSUBS

```

```

990 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1000 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1010 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1020 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1030 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1040 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1050 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1060 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1070 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1080 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1090 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1100 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1110 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
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1160 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1170 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1180 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1190 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1200 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
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1390 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS
1400 GOSUB1200 IF NOT(OTHER POWER) IF GOSUBS

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SOUNDERR:=GOTO70
1330 REMODR:=175047 REMODR=THRR
RR=40 ELR:=RR+84000:R1:=RR+RR-54
1335 PRG30TH+501200
1338 IF RR=0 THEN DRWPAV=27000040
+985100:GOTO1200
1340 RR=LR+5 DRWPAV=THRR+RR+5000
+50701200
1350 LR11:=04020000:40400000
1360 LR12:=03120000000000000000
1370 LR13:=00000000000000000000
1380 LR14:=00000000000000000000
1390 LR15:=00000000000000000000
1400 LR16:=00000000000000000000
1410 LR17:=00000000000000000000
1420 LR18:=00000000000000000000
1430 LR19:=00000000000000000000
1440 LR20:=00000000000000000000
1450 LR21:=00000000000000000000
1460 LR22:=00000000000000000000
1470 LR23:=00000000000000000000
1480 LR24:=00000000000000000000
1490 LR25:=00000000000000000000
1500 LR26:=00000000000000000000
1510 LR27:=00000000000000000000
1520 LR28:=00000000000000000000
1530 LR29:=00000000000000000000
1540 LR30:=00000000000000000000
1550 LR31:=00000000000000000000
1560 LR32:=00000000000000000000
1570 LR33:=00000000000000000000
1580 LR34:=00000000000000000000
1590 LR35:=00000000000000000000
1600 LR36:=00000000000000000000
1610 LR37:=00000000000000000000
1620 LR38:=00000000000000000000
1630 LR39:=00000000000000000000
1640 LR40:=00000000000000000000
1650 LR41:=00000000000000000000
1660 LR42:=00000000000000000000
1670 LR43:=00000000000000000000
1680 LR44:=00000000000000000000
1690 LR45:=00000000000000000000
1700 LR46:=00000000000000000000
1710 LR47:=00000000000000000000
1720 LR48:=00000000000000000000
1730 LR49:=00000000000000000000
1740 LR50:=00000000000000000000
1750 LR51:=00000000000000000000
1760 LR52:=00000000000000000000
1770 LR53:=00000000000000000000
1780 LR54:=00000000000000000000
1790 LR55:=00000000000000000000
1800 LR56:=00000000000000000000
1810 LR57:=00000000000000000000
1820 LR58:=00000000000000000000
1830 LR59:=00000000000000000000
1840 LR60:=00000000000000000000
1850 LR61:=00000000000000000000
1860 LR62:=00000000000000000000
1870 LR63:=00000000000000000000
1880 LR64:=00000000000000000000
1890 LR65:=00000000000000000000
1900 LR66:=00000000000000000000
1910 LR67:=00000000000000000000
1920 LR68:=00000000000000000000
1930 LR69:=00000000000000000000
1940 LR70:=00000000000000000000
1950 LR71:=00000000000000000000
1960 LR72:=00000000000000000000
1970 LR73:=00000000000000000000
1980 LR74:=00000000000000000000
1990 LR75:=00000000000000000000

```

Listing 2 Hex Loader

```

10 HEX LOADER FOR 'WORDPROC' REMOR
Y DUMP, BY PETER WHITTAKER
20 INPUT"START ADDRESS:"START
30 INPUT"FINISH ADDRESS:"FINISH
40 FOR H=START TO FINISH STEP 5
50 PRINT H;" "
60 TT=0 INPUT M=200
70 FOR R=1 TO LEN(M) STEP2
80 L=VAL("0"+M+R+00000000:R,M,2)
90 TT=TT+L*POW(16,2-L)
100 Z=Z+1 NEXT M
110 PRINT" "
120 INPUT T
130 IF T<0 THEN PRINT"error - END
OR LINE FORN" GOTO50
140 NEXT H

```

Listing 3 Register - dump

```

10 CLEAR200,32240:POKE405,PROG4,1:
LOAD"DISCOSGE.BIN"
20 CO=47000:CU=47010:80=47072:80
=47000:Y0=470000
30 SCREEN=0
40 POINT=0:CHECK=0:CHRY=0
50:XXXX GET PICTURE XXXX
60 CLR PRINT100:"LOAD DISCOSGE TO
HIGH MEMORY:"PRINT INPUT"R:
SCREEN TITLE":R0:R0=LEFT(R,
7)
70 LOADR0="1.BIN":POKE404,0:POKE4
0,0:EXECCU
80 LOADR0="2.BIN":POKE404,32:EXECCU
90 LOAD R0="3.BIN":POKE404,192:EXECCU
100 LOADR0="4.BIN":POKE404,0:EXECCU
110:XXXXPRINT OUT LOOP XXXX
120 POKE5280,POKE5280:POKE5284:PO
5286:INTERP10
130 D=255:GOSUB100
140 FORM=0TO400:POKE47000+M,0:
M=1:GOSUB100
150 PRINT"2.CHRY 13":CHECK(13)
160 POKE5280:POKE5280:FOR1
170 STOP
180 FOR Y=0 TO 0 STEP 7
190 POKE404,32:POKE404,Y:EXECCU:PO
KE Y TO 0:POKE404,0:EXECCU:PO
KE Y TO 0:POKE404,0:POKE404,0
200:POKE404 TO 255:2=POKE404,0:PO
KE404,1:2=2+POKE404,2:2=2+POKE404
3:2=2+POKE404,4:2=2+POKE404,5
4:2=2+POKE404,6:2=2+POKE404,7:2=2+
POKE404,8:2=2+POKE404,9:2=2+POKE404
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LET'S BEGIN with details of another feature — more that should get everyone's attention. With the help of a solution from Simon Hargreaves of Greenley Hill Farm, Uley, Dursley, Gloucestershire GL11 5BH, I've prepared a handout on Trillicker as if you want a copy of that send in the usual a.e. and your wish will be my command.

One reader wrote in asking what were the various handouts available: go look for an update on these instances. Finally I've got a blue sheet for Madness and the Minotaur as originally supplied by Dragon Data to anyone who wrote in with queries on that game. I've also got a copy of the notes that went on the cassette play card for *St. Dabblers* — an aspect of this adventure may lead to be sold without the play card and the notes as it really do help you get started on what is a difficult game. Finally I've got solutions to *The Crossroads Incident*, *Half-Dragoned and Frenzied* I think if you want copies of those then you only need send me a couple a.e. — some colorized me envelopes you could I am a step-in for your information. I have the handouts on file on disc and simply print one out on A4 paper whenever I get a request for one.

A reader from Swansea, whose name I won't give in case he gets inundated with similar requests, decided to provide his own letters. This reader used to be a letter for *Starwaster* and had spare copies of *When Calls of Doves* and *Frontier in Woodstock*, which he sent to St. Dabblers and I don't think about the games in an editor column. Thank you for that and for the information that before taking software you must POST 25 p. NINE to create the extra memory both programs require. (And thanks to Mrs. Fitzgerald of Alpacas who shared the office with the same information.)

Madness

S. J. Edwards from 5 Barnfield, New Malden, Surrey KT3 5BH says "Congratulations on producing the best adventure column in any magazine." Well, should one do one's job and I'd like to take this opportunity to thank my editor (whatever it is) for my efforts. My producer (my list of speech deleted) Anyway what S. J. Edwards says is that he's having difficulty tracking down copies of the tapestry and would be interested to hear from anyone keen to sell or swap *Madness* and the

Minotaur. *Dragon Mountain Castle* listed *Black Sanctuary*, *Adventure Tricky*, *King Mountain* and *Magic* and several other titles. Touchmaster is now apparently sold out of *First Countdown*, *Minotaur* of *Down Street* into *Potential Adventure* and *Centaur Mountain* he also writes though they're not adventure. *Dragon Path*, *Logic* and *Dragon Code*.

Help on a few titles is offered by Douglas Ford, 14 Llanegwylt, Hysfyllt, M. Haverfordwest, H11 3PT. He lists being *King of the World*, *Fun House* and *Perseus Adventure*. In return he asks if anyone knows where to buy some out-of-print adventures for his 52k Tandy Color. Any offers?

Help

Peter Williams of 27 Galeshead Road, Worcester WR12 0DA is also trying to come out of a pit and offering help to anyone stuck on *Justaposition* with Mark Geddy. He's completed *Black Sanctuary*, *Castle Island*, *The Death Mine* of *Spice* and *Shogunspire* and offers help on any of those. Don't forget this is a.e. when writing to any reader for help of course. Mark seems to know if anyone has come across any adventures (Frenzied or Doves) so he can compare his favourite hobby with his CD level version. A nice trick. Mark and if anyone can help him get away with I write to Mark Geddy 125 Pinnered Park, Cove, Farnborough, Hants GU14 5LE.

If you were studying *Isabel*, Mark, you could have tried contacting Morris-Ford of Via San Paolo 8, Cap 37100, Verona, Italy. Morris wrote to say that after three months of difficulties he eventually finished the tapestry *St. Dabblers*. I think the post had difficulties, too, as Morris wrote in January and the letter arrived in May! Still, he offers help to anyone stuck in the adventure or if you just fancy contacting Isabel Dragon owner, why not write?

Christopher Dayne from St. Adams wrote about various things, including the suggestion to make more space for the actual column we should remove the large heading and also rather than printing separate covers and other advertisements on the page. Personally I think a solid page of text would look pretty boring, but has anyone else any strong views on that? Christopher also suggested that a few notes for beginners should be made available, so leaving even more room in the actual column for product

reviews and clues. If there's sufficient demand from beginners for that, then I'll try to do something about it.

To keep Christopher happy, then, I'd better get on with some clues, like those from Stuart Elliott of Birmingham. In Joe Kingdom is all Harker, YPUOMR MRRP, QULHISLAND CHIRDS EDS. To escape the dungeon, NAMWOS, NAEH, ECH MRRP, MRRP EDS. In Towers of Death is all Madusa, NOPRRM THOP. The order in which to move the armour, EDTH DWT DWT DWT.

A few clues on Trillicker from Matthew Hammer of Edmonton. To cross the lake, hold, HEDATONG, MRRP, TE LUMA, YRRAC. To remove grates, TIRREH, DCCA, ELLUP. More help from a reader in Derbyshire who forgot to sign his or her name. On *Frontier* is fairly to stop the water in the museum, ELOH, ELLUP, EPYT, DNA, ELLUP, DWT. To find the key, HSSAURE, YAKSINA, HSSAURE, EUTATS, OT, DGT. To open the passage, SPALLED, EHT, MRRP, DRUGULA, R, OTUOM, EHT, OTNE, RUTAW, ELLUP.

Can anyone tell Pat Perry where to clip the key in *St. Dabblers*? Come to that, can anyone tell me? The lives at 30 Lees Road, Mansfield Woodhouse, Notts, and I live in an old cottage in the corner of the *Dragon* User office.

Code

Andrew Hill has got a code, not at the north but on *Operation Salazar* and he's willing to pass the information on to others, particularly Justin Field who was asking about it at the April issue. The code for part 1 is 13 ENTER, and for part 2 the TAYGO. There isn't seem much point in getting these last things backwards, so I hope nobody minds. Andrew also asked for a good adventure for a beginner, preferably with graphics — the adventure that is not the player I'd have thought something like *Black Sanctuary* or *Sea Quest* would fit the bill, both with graphics. Both regrettable, not too difficult for the experienced player but good for the beginner in that all the problems are fairly logically solved and the scale of the games isn't so big that you get lost wandering down endless corridors and through mazes.

Steve Griffin has already had a mention in the column, but somehow his address came out wrongly so I'll try again. 28 Old

[illegible]

Stephen Houston (1) (rank of 4-Berkacoff) Lingers: Preslor Lingers 1994 S&L also said in a Jurisdiction page, and/or said about reproducing that as several readers have asked about one, and Stephen stated: "The entire section should be a lot longer - by at least five pages! Sorry on Stephen. Too much on-right advertising has affected your letter. I think what Stephen needs help is: *Ministry of State and Possession Adventure*. In the former how to get across (the road to reach the office) and in the latter how to get across the

collisions level there. He also asks if anyone has hints sheets and maps of these titles. Not me, no one is you.

Mike Hodge has completed *Ashepore* door which he thinks every dragon owner should buy. As it goes, I have and get stuck into it. Made at Calmar, Hawthorn, Gladstone, Queensland. TAT OAU. Price sent the no less than 22 clats for 1 to game — maybe I do need an extra five pages after all.

Some people have been having co-ordination trouble in Sydney so James Benfield of 7 Water End Wauwangerworth Bendy Beds SG19 3PA to the rescue "To enter the co-ordinates you must take the row you wish and then press the number and pull the lever. For example, if you

wanted to go to the planet, you must have PHASE ZERO, PHASE FOUR, PHASE ONE, PHASE FIVE, FULL LEVER. The first planets piloted by James also gives the other co-ordinates you need, which are 2-7-3-0 to the asteroid and 1-0-4-0 to Drash Vador. James is having trouble with Keys of the Wound and asteroids, not many have managed to arrive and wander how to open the wound's gold box. Have you open the chest at the hidden temple. How to open the stone box in the hidden temple and how to defeat the spider. If anyone has managed to put together a resident on Keys of the Wound do contact us then I can give another column by saying. Let's begin with details of what the temple.

Adventure Contact

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Prüfung:
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Adresse:

Adventure Contact

Adventure Castle Adventure
Prisoners Is it possible to smash glass in north wall of section? How do I unfasten the window? Name Andrew Hall
Address 68 Widdoworth Avenue
Castle Podge Stamford
 01117 9420

Apartment Complex Problem What do you do with the mouse? When do you fix the balcony? What use is the metal detector? What is the key? Name Robert Gooding. Address 68 Tallerton Drive, Irvine, Durham, N.C. 27032.

Adventure Aqueduct #79 Problem: I don't want to do anything — keep going ahead and new locations, builders! And anything or go anywhere different. Please! Patient Grouping

Address: 22 Ipswich Drive
(near) Algonquin K4A1Z 6G2
Admission: Jurisdiction
Problem: How do I get over the
first balcony? Is there a first
phase? Name: Andrew McCall
Address: 23 Top Cliff
Court, Montey Ne Leeds O6B2
6A27.

Adventure Workbook Problems

Address	15 Pages	Class
Peering	Colloquy	Exams
CCN 5LP		

Advertisement **Justification**
Problem How do you get the
emphasis? Where are the
Dance of Brown? Name Wing-
land Mitchell Address Ashleigh
Farm Dayton 10 March 1910
About Louis Litch 1910?

Adventure Dismounts Problem Have found dead long long tough rope and burning torch and the bull grip. (That's what I say.) Home Opined. **Address:** 10 Mustang Canyon Blvd. Waco, TX 76787.

Adventure Trekbow Problem Can't get past the force field or get to the Great Name Earl Robinson Address 8 Brownhouse Close Dandy Daily West Yorks

Adventure Block Surchat
Problem How do you get out of
 the forest? And everything at
 1st that? **Name** **Age** **Post**
Address **St** **Marathon**
Close **Greys** **Exon** **RM16**
 1999-2000

Activities: **Antagonism:**
Protagonism: Which is the real and reliable one? Which is the reliable one?

Please help Mama Simon
James Address 57 Collins
Missouri Hattie (Lena) Child
APM

Adventure 1: Operation Sal-
mon(2) Adventure 2: Problems
1) Don't get past the first
chapter I can't answer the
questions but real get the
code 2) Completely plus
Name Adrienne Marrott
Address 17 Shepherd Place
Tuesham Oke-on-Trent
ST4 9SC

Advertisements: Wings of Your Problem: How do you get past your self? Learn to change!
Name: _____ **Address:** _____
Hampden Close Boulder
CO 80502

Admission: Jackpot
Problem: I can't get out of the
emerald forest with the Elder
Council Name: Simon Pike
Address: 4 Alder Close, Basing-
stoke, Wiltshire, Gwent, LL10
2011

Adventure Operations Sales Problem Can only find agents number one. Need help to find the others. Name: Margaret Wardlaw Address: 24 Avenue Avenue Chippewas Chatham Kent ON N6A 0B9

**Adventist Bears of Call to
Justice on Problem Wines
and the Devil's Own? News
Seven Edition Addressed to
Thornhill Road Ministry, Wey-
mouth, Dorset, UK**

Advertiser: _____
Problem: I am interested in
but I can't find the man or
Name: _____
Address: _____
41 81 Bismarck, Georgia
Occupation: _____
Box 12, 30302

Advertiser: Jantiposon on Problem **I can't get past the JKL Grid. How do you get on to the planet surface? Is there a hot steel?** **Name:** Howard Johnson **Address:** 10 Ouncel **Advertiser:** Bristol Box & Box

Adventure Total Subject
Problem How much do you
need to go to a higher level?
Name ID Club
Address 294 Baldwin e Lane
City/State/Zip 10000
Grade/Class 10000
Grade/Class 10000

Adventure Return of the Ring Problem What do you do on the forest moon? **Home Made** or **Lowell Address** 10 Dances Close, Cambridge, South (Starwood, Miller)

July 2000 Dragon User 23

Mind The Cracks

Gordon Lee hops from slab to slab in pursuit of this month's prizes — some great incentives

LAST MONTH we took a cursory look at random numbers, including reference to the Dragon's random number generating function. This is a first case with the same comment on other microcomputers: has the disadvantage of producing the same sequence of numbers when starting from cold. Clearly if we see strings like 11111111 in a program this problem needs to be overcome. An adventure-type game would be a bit tedious if, for example, objects were always set out in the same locations and the responses to specific commands were always the same. Memory with decade games, moving objects that are too predictable would not provide much of a challenge!

One way of overcoming this problem is to include the following lines in your program:

```
100 PRINT "PRESS A KEY TO
CONTINUE"
110 A2=INKEY$;N=RND(1); IF
A2="" THEN 100
```

The lines are numbered from 100 and 110 so they can be inserted anywhere in your program (probably nearer the beginning, say following the title or instruction page). Using this routine, the computer will spin through its sequence of random numbers for an unpredictable period of time (until a key is pressed), and will so ensure that subsequent use of the random command will produce a truly unpredictable number.

Last month I gave a strategy for a program which used the Atari interface to plot a random walk on the Dragon's 32 by 16 low-resolution text screen. This concept of random walking has inspired a certain amount of attention in the mathematical press. At its simplest, such a walk can be one-dimensional: imagine that you are standing on a straight line stretching in both directions to infinity. You toss a coin if it is a head, you move one step to the left; if it is a tail, you move one step to the right. By repeating this concept to two dimensions we arrive at a random plane surface like the one illustrated in last month's program. The competitive this month involves taking a random walk on a much larger plane surface. Imagine a square quadrangle paved with a regular array of 100 square paving slabs, 101 slabs along each edge. The quadrangle consists of a central area of 99 by 99 white slabs and around this is a single row of grey slabs.

Starting at the very centre square we are going to take a random walk, using a pseudo-random sequence of digits to decide on the direction at issue. This is determined by taking successive digits in the decimal part of the expression 1/17398, which begins 0.057503267619.



Each digit determines the direction in which we move, as shown in the diagram. So for '1' move one square north, for '2' move one square diagonally north-east, and so on. The digits 100 and 101 are ignored whenever they occur. So we would start out journey by moving south, west, south, west etc. The question is, at which point would we be forced to find step onto one of the grey border slabs? Please give

your answer in the form: North edge, 17th slab, both North-west corner — or what-ever!

For collectors of mathematical oddities, the decimal value of 1/17398 repeats in cycles of 17398 digits. Its full value was first calculated by the 16th century mathematician William Shanks, who also computed the value of π to 707 decimal places. When this value of π was examined it was found that the digit '7' occurred much less frequently than did the other digits. Scholars of the time put forward all sorts of theories as to why this should be. In fact, Shanks had made an error in his original calculation and it was after the 19th century recomputed. Since this had been corrected the frequency with which the last digits occurred balanced out, as indeed they do for even larger expressions of the value of π . In this respect, possibly subtle, pseudo-random generators.

This began last month by linking π and random numbers, so it is perhaps appropriate that we should now conclude at this point.

Rite

This month write back in joyful country with 30 squares of last month's five-star review, whereby again share game Moon Cresta, courtesy of Incentive Software, as prize. So take steps to locate the answer, and win some well-earned brain relief.

Rules

To win a prize game, you must send us the answer to this problem in the form of the location of the slab in question — and a pointer, for speed of the program you used to solve it. No cassette games — they won't fit in the competition box.

Make sure your name and address are printed clearly on your entry, and make the outside of your envelope July Competition (without which your entry will not even find the competition box).

As a time breaker, complete the following Dragon: The Dragon takes a good day.

Entries must reach us by the end of August, and winners will be announced in the September edition. The winners will be judged on their memorability and the editor's decision is as usual final.

April Winners

The 15 lucky winners will be receiving copies of *Amulet* from Tony Taylor. They are: A. Newman of Adlestone; M. J. Stanford of Kingston; M. Ingram of Leeds; G. Galt of York; J. C. Garside of Crampton; M. Stone of Ipswich; Mark Hague of Warrington; Phil Sagar of Wotton; Liverpool; Chris Preece of Rakecote; Dennis C. Gilly of Gorse Park; London; D. Dickinson of



Horsley Park, Bedford; P. J. Taylor of Adden; Mordenborough; Justin Hearn of Hooton; Steve Lomax of Warrington; Rachel A. A. George of Chesham; and Frances Edmunds of Bedfordshire, Co. Durham.

All agreed that the number of volunteers on the team was 50, just counting the Competition Manager who could make a 5000 — but we didn't need to know that. The winners were happy on the last night but our favourite read: I want to visit Standard because I find I left my cat days there.

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